ACCLIMATISATION.

By Hon. Walter Kingsmill, B.A., President of the Legislative Council

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For the purposes of definition, acclimatisation may be divided into two heads—domestication and naturalisation. In the few remarks I have to make, my principal references will be to the latter division. Combining the two, it is sufficient to say that in the history of mankind there has been no more potent factor towards civilisation and progress than the inherent tendency in man to surround himself, wherever he may go, with the plants or animals to which he has been accustomed in his country of origin. It is, therefore, naturally to be expected that England—the wanderer, the Ulysses amongst nations—has played a most important part in spreading throughout the world the various products of the vegetable and animal kingdoms which her sons have used in their homeland. Always there is an effort made to create in the many countries beyond the seas to which their roaming tendencies have brought them—another England.

This tendency, above referred to, whilst it has given to many countries of the world practically all that makes life worth living, does not always make for good, and through this strange development of home-sickness we have to-day in Australia rabbits, foxes, sparrows, starlings, thistles, and many more examples of this proclivity to consider a new home undesirable without the surroundings of the old.

But, on the other hand, it may be said that in the Greater Britain beyond the seas, Englishmen have brought with them to the land of their adoption nearly everything that has made that land a fitting home for them. Perhaps the most wonderful instance of the value and success of acclimatisation may be found in New Zealand. From the evidence at our disposal, it appears probable that some 600 years ago these lovely islands were without human inhabitants. Of mammals there are none; of reptiles very few. The fish in the rivers were confined to the members of a few insignificant and useless species. Birds, indeed, in plenty. Man first made his appearance from some of the South Sea Islands, bringing with him the dog and the rat. Then came Cook, the circumnavigator, and released pigs, which there found their island home so much to their liking that they flourished exceedingly.

With colonisation there were introduced deer, trout, and salmon, and to-day we see a land which, in comparatively recent historical time, was practically devoid of life, looked upon now as a sports-

man's paradise, and visited yearly by many thousands of people to enjoy the resources which have been created by acclimatisation.

That this subject has more than a sentimental significance may be gathered from the fact that some of our great industries are built upon its products.

Take, for instance, the rubber industry in the East Indies, where all the trees cultivated are the progeny of a few Para rubber trees (*Hevea Braziliensis*) introduced to Singapore less than 50 years ago. The same is the case in connection with the quinine industry in Java, whence a very large proportion of the world's supply of this indispensable drug is obtained but, perhaps, speaking as I am to an Australian audience, I might well depend upon the example of an acclimatised animal which has done more to add to the wealth of Australia than any other—I refer to the merino sheep.

One advantage of acclimatisation is that it is not one-sided. As well as receiving benefits, most countries give them in return, and instances of this are not lacking in the case of Australia. We have sent our eucalypts practically all over the world—in North America, South America, Southern Europe, South Africa, Asia, the Tasmanian blue gum has become a familiar tree, while South Africa to-day is sending us, to tan our leather, wattle bark taken from trees the progeny of those introduced into that country from Australia.

Before the war, annually, large numbers of our kangaroos were sent to Germany for release in public and private parks, and the German people much appreciated, as a food, the flesh of this much under-rated animal.

Coming now to what has been done in Australia, we find that in Tasmania, the Island State, the first instances of useful acclimatisation have taken place. How the enthusiasts of the Sixties and Seventies managed with the slow transport facilities of the day to bring from the Homeland the ova of trout and salmon is hard to understand. However, this feat was accomplished, and in their new home these fish did well and in a few years provided the stock for the New Zealand rivers. Red deer, too, sent from Tasmania, were the progenitors of those which now range the hills of Maoriland.

The other Australian States followed this lead either by the expenditure of Government funds or by the liberality of public-spirited individuals, until we see to-day that nearly all the streams reaching the ocean on the eastern and south-eastern coasts provide excellent trout-fishing, and some of these fish are found in the tributaries of the Murray and Darling River system. Deer, too, have been introduced in many places and have done well. English pheasants and partridges would, perhaps, have stood a better chance of success had it not been for the fact that in an excess of zeal some enthusiastic devotees of the chase found it necessary for their peace of mind to hunt the fox in the land of their adoption, and this ani-

mal, finding his new surroundings to his liking, has increased to such an extent as to become one of the most serious pests that Australia has yet seen and, in conjunction with the domestic cat returned to a state of savagery, has rendered the successful rearing of ground game almost an impossibility as well as destroying in very large numbers our rare and beautiful smaller fauna. To come to our own State, acclimatisation work may be looked upon as a plant of quite recent growth, and while at first the soil in which it grew was enriched by the attentions of those in power in granting moderately generous amounts to this most national and useful of objects, at the present day, when, to continue the analogy, our plant has blossomed and begun to bear fruit, its sustenance is curtailed to such an extent as to threaten its very life. Surely an instance, even if a small one, of faulty husbandry.

In Western Australia the principal efforts of those controlling the work have been directed towards the acclimatisation of freshwater fish in our rivers, lakes and other available waters, and in this, with the experience gained through initial mistakes, a fair amount of success has been attained. To-day, in nearly every river and stream in our Southern districts, English perch may be found, and in some places the fishing will compare very favourably both for quantity and quality with any part of Australia. This fish seems admirably adapted for life in our waters, accommodating itself, apparently, without difficulty to the many changes and chances of temperatures and salinities met with in different localities. Perch have been taken up to seven lbs. in weight, and in the waters which have been stocked for the longer periods fish of four pounds and over are not infrequent. With the increase in size, an improvement in edible qualities is associated: an occurrence which is somewhat unusual. On the whole, the English perch has been found to be easily the most suitable and adaptable fish for our freshwater areas.

During last year 1,000 fish, in 100 different consignments, were sent to parts of the State as far apart as Sandstone in the North, to Manjimup in the South. These fish are delivered free of all charge at the nearest railway station or siding to the home of any settler who is willing to take charge of them, release them in the waters in which they are to live, and return the cans in which they have made their journey to the station for carriage to the depôt at Chidlow's Well. The distribution of fish alone necessitates, in addition to the provision of the fish which are caught, caged (to ensure their better travelling) placed in the cans and taken to the station at Chidlow's Well, a large amount of inspectorial and clerical work, the former to ascertain whether the waters for which fish are required are suitable as regards size, depth, temperature, salinity, food supply, etc., and the latter in answering letters of application making arrangements for inspections, giving notification to consignees of the despatch of fish and other numerous directions. All this in-

spectorial and clerical work is carried out by honorary effort, and even then, when it is considered that the grant for all branches of acclimatisation work (and fish form only one of the branches), amounts to only £75 annually, it must be admitted that the State receives excellent value for its money, and further that an undertaking such as this which has already given to hundreds of settlers the opportunity of obtaining from the streams or lakes near which they live, or even in many cases from the dams which they themselves have sunk, an abundant and every-ready addition to dietary scale which, in many instances, is unhealthy because of its monotony, is surely worthy of a more generous recognition and a larger measure of monetary support than is now being accorded to it.

To return from this financial digression, it may be noted that in the case of trout our experiments have not been so satisfactory as with perch. In former years, when funds were available, experience was lacking; and to-day, when by the experience we have gained we know where these fish would flourish, we cannot, apparently, obtain the necessary money to carry out this work, which is slightly more expensive than the cultivation of perch.

Many years ago Murray cod, obtained from South Australia, were placed in Grassmere Lake, near Albany, but it was only when some twenty years after the cutting of a drain lowered the level of the lake that, by the stranding of many large fish, it was found that they had done well. Specimens of over 60lbs. in weight were found and opportunity is now to be sought to place yearlings of this fine food fish—the largest of the perch family—in such waters as by their comparative isolation will not render the voracity of this species a menace to existing fish life.

Early attempts were made to introduce tench and carp. In the case of the first-mentioned the attempts were happily unsuccessful. As regards carp, however, these fish obtained more or less of a footing, but they are not any longer being distributed.

Looking to the future of fish culture, it must be admitted that there is still much to be done. In addition to extending the scope of our present work by introducing trout to the suitable streams which, by examination, have been proved to exist, it is eminently desirable that an effort should be made to bring to our shores some of the food fish of other lands, and the shad, one of the finest and best of the herring family, is at once suggested. The numerous inlets and river mouths on our coast would provide ideal breeding and feeding grounds for this fish, and that it will repay expenditure in acclimatising it is evidenced by the fact that many years ago consignments of these fish and of striped bass, another fish suitable for us, were sent right across America from East to West, released on the Californian coast, and now form a large proportion of the fish supply of Western America, and play an important commercial part in the lives of many people.

But then it is well to remember that in America they pay some attention to matters of this kind.

In relation to the introduction of birds suitable for sporting and food purposes, it has always been necessary to exercise the greatest care in the selection of species which, while fulfilling the above qualifications, would not prove destructive.

Pheasants and partridges have been tried, but so far without much success, as they fall easy victims to the ravages of cats, etc.

With guinea fowl, however, the case is different, and it is now found that along our coastal districts following roughly the belt of tuart timber which exists for some two hundred miles or so within a few miles of the sea, these birds are doing very well and increasing to such an extent that it is permissible to hope that in a few more years, with the additional stock which is always being turned out, and the natural increase, good sport and a valuable food supply will be available.

In districts further inland, for reasons at present not apparent, they do not succeed so well.

Black African spur-wing geese are also being distributed, but it is, as yet, too early to pronounce a verdict on them. Should, however, the experiment prove successful, this bird, which in South Africa is much thought of, should prove a valuable addition to our resources.

The same remarks apply to the Canadian wild geese, recognised as one of the finest game-birds of the world, of which specimens have been sent to one or more districts, the numbers being necessarily limited by paucity of funds.

The mallard, or English wild duck, in the Zoological Gardens, and in some of our city parks, rear each year large clutches which fly away into the country, but this species is not by any means an improvement on our own native black duck.

Doves of two species are being continually despatched to applicants in various country districts and do well, especially where pine trees exist for them to nest in. Along the Darling Range and between the same and the ocean for many miles the laugh of the kookaburra is becoming a familiar sound, and applications are coming to hand for more supplies, showing in what high estimation this typically Australian bird is held.

In this short record of what has been done with the scanty means at our command, the efforts which have been made, in some cases successfully, to acclimatise mammals, must not be lost sight of.

The Scottish red deer, the noblest of its tribe, has formed the subject of experiment in three localities in the neighbourhood of Albany, close to Cape Leeuwin, and in the unoccupied tract of practically useless land between Pinjarra and Rockingham.

In the two first-named districts, from causes hard, if not impossible to ascertain, no success has followed, but in the case of

the last-named experiment the results have been excellent. From deer released some twelve years ago there has been established a herd numbering probably over 150 head of remarkably fine specimens which run in this sandy, scrubby stretch of country, and seem to flourish therein quite as well as in their native land.

Indian black-back, a handsome and harmless antelope, has been tried with success on our Murchison country, and a small but steadily increasing herd of these animals is frequently seen in the vicinity of Wiluna. There is such a large extent of our inland dry country suitable for these antelopes that it seems a pity that the necessary funds to place more of them in our back blocks cannot be found.

The Indian hog-deer, too, would do very well in the swampy country of our South-West, but, again, lack of money stands in our way.

It is impossible in a short paper to do more than to merely touch upon the salient features of what has been accomplished in the face of great difficulties in our State, but those who are interested in the subject may perhaps be allowed to hope that in the future those controlling the affairs of Government may be induced to view with a more kindly eye than has hitherto been the case, efforts to carry out this work which, it must be admitted, has an important bearing on the comfort of the everyday life of those dwellers in our agricultural and pastoral lands whose welfare should be important to us all.